

RDB WITH THE SPECIFIED MEMBER AND PARAMETERS IN LAYER RULE--.

**REMARKS**

The above amendments to the specification and the drawings are respectfully requested for entry into the above referenced patent application.

Respectfully submitted,



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Date: January 4, 2002

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structure definition data 3201 through 3204 contains a plurality of records that are separated by lines. Each of the records has members that are separated by commas, and the separation format is called comma separated value format (CSV). One record potentially includes all the members from the highest member to the lowest member. The

5 conventional layer structure definition data 3201 through 3203 each is organized to list records according to the level. That is, in the above example, a record at Level 2 is followed by a record at Level 1 and then by a record at Level 0. For the layer structure definition data 3204, a record has only members at Level 0.

10 Now referring to FIGURE 22, a diagram illustrates an example of conventional data. The data 3301 is stored in the cube and in the above described CSV format. Each of the record includes members and corresponding cell values. In the example, each record thus contains five fields respectively for information on month/year, a retail store, a merchandise name, a number of sales and an amount of sales. The first three fields are

15 respectively from the time dimension, the retail store dimension and the merchandise dimension. On the other hand, the last two fields are cell values representing the number of sales and the amount of sales from the unit dimension.

FIGURE 23 is a diagram illustrating an exemplary display of multidimensional

20 data. The exemplary display is a screen multidimensional data analysis on a terminal device. The horizontal axis includes members on the time dimension while the vertical axis includes members on the retail store dimension. All members are displayed from the above dimensions. On the other hand, as shown in the upper ~~right~~ left corner of the display, only one member such as television is displayed in the merchandise dimension and

25 only one member such as sales amount is displayed in the unit dimension. The above exemplary screen display shows the sales amount for televisions at each retail store for each quarter. For example, the data representing the member 1999Q1 for the time dimension is a total value of the data 199901, 199902 and 199903. Similarly, the data representing the member, Eastern Japan for the time dimension is a total value of the data

30 Chiba store and Saitama store. According to the previously noted dimensional layer structure, the data is a total value. One of the basic functions of the multidimensional database management system is to search the total value. To obtain more detailed data,

current invention. The RDB product master table stores member names on the merchandise dimension in the RDB 26. In combination with the information on the fourth and the following lines in the layer rule definition data 3130 of FIGURE 15, the layer information is generated for the merchandise dimension. For example, given an  
5 unregistered member, "PCs," the RDB 26 is searched to obtain a record 261 whose data value for the small classification is "PCs." The fourth and the fifth lines in the layer rule definition data 3130 of FIGURE 15 specify the LEVEL 1 and LEVEL 2 members that correspond to "computers" and "all merchandises."

10 Now referring to FIGURE 17, a flow chart illustrates steps involved in a third preferred process of the layer structure information updating process 90B according to the current invention. The layer rule 42 and the above specified member from the layer structure information management unit 15 are inputted to the layer structure information updating process 90B. In a step 9021, the layer structure information update unit 16  
15 receives an instruction for layer information generation for the above specified member from the layer structure information management unit 15 and examines the layer rule 42. If the layer information is not to be generated from the RDB 26, the third preferred process terminates. On the other hand, if the layer information is to be generated from the RDB 26, the third preferred process branches to a step 9022. In the step 9022, the RDB  
20 management system 25 is connected based upon a predetermined procedure. In a step 9023, an inquiry is made to the RDB 26 based upon the above specified ~~members~~members and the parameters that are specified in the layer rule 42. In the step 9024, the layer structure definition data is generated as the layer information from the inquiry results according to the layer rule 42. In the step 9024, by using the generated layer structure  
25 definition data, the layer information of the specified member is also stored in the layer structure information 43, and the above generated layer information is returned to from the layer structure information management unit 15. The third preferred process then terminates.

30 As described above, in the third preferred process, the multidimensional database improves the management efficiency. For example, the layer 4303 as shown in FIGURE 20 is registered at the layer structure information 43 of FIGURE 1 and the retail store